



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,173	04/13/2004	Sundar Vasudevan	200314549-1	6366

22879 7590 04/20/2006

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER

SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
----------	--------------

1714

DATE MAILED: 04/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/824,173

Applicant(s)

VASUDEVAN, SUNDAR

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 17-36 is/are rejected.
- 7) ☒ Claim(s) 14-16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/13/04 & 9/2/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-5, 7-9, 11, 17-21, 23, 25, 29-31, and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Kurabayashi (U.S. 6,790,878).

Kurabayashi discloses ink jet ink comprising liquid vehicle and polymer-dispersed pigment dispersed in liquid vehicle at pH of 3-8 wherein the polymer-dispersed pigment is pigment encapsulated with a polymer wherein the polymer is obtained from hydrophilic monomer such as vinyl sulfonic acid and (meth)acrylic acid and hydrophobic monomer such as styrene or alkyl (meth)acrylate. There is also disclosed system comprising substrate and ink jet pen containing the ink and method of printing an image comprising jetting the above ink onto substrate (col.1, lines 19-16, col.3, lines 50-52 and 58-67, col.4, line 66-col.5, line 4, col.6, lines 14 and 45-47, col.8, lines 1-21 and 34-36, col.9, lines 13-21, col.10, lines 1-2 and 11-16, and col.15, lines 30-47). Given that the polymer-dispersed pigment is dispersed in liquid vehicle at pH of 3-8, it is clear that the polymer-dispersed pigment is stable at such pH.

In light of the above, it is clear that Kurabayashi anticipates the present claims.

3. Claims 1, 6-11, 17-18, 23, 25, 29-30, and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Arita et al. (U.S. 6,730,149).

Arita et al. disclose ink jet ink comprising liquid vehicle and polymer-dispersed pigment dispersed in liquid vehicle at pH of 7-10 wherein the polymer-dispersed pigment is pigment encapsulated with a polymer wherein the polymer is obtained from hydrophilic monomer and hydrophobic monomer such as styrene. There is also disclosed system comprising substrate and ink jet pen containing the ink and method of printing an image comprising jetting the above ink onto substrate (col.1, lines 8-10, col.4, lines 1-11, col.5, lines 19 and 32-38, col.22, lines 61-6, col.24, lines 14-16, col.25, lines 10-12 and 21-22, col.26, lines 46-65, col.27, lines 21-23, col.29, lines 50-60, col.30, lines 2-11, col.30, line 55-col.32, line 6, and col.58, lines 1-52). Given that the polymer-dispersed pigment is dispersed in liquid vehicle at pH of 7-10, it is clear that the polymer-dispersed pigment is stable at such pH.

In light of the above, it is clear that Arita et al. anticipate the present claims.

4. Claims 1-11, 17-25, 29-32, and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakamura et al. (U.S. 2003/0195274).

Nakamura et al. disclose ink jet ink comprising liquid vehicle and polymer-dispersed pigment dispersed in liquid vehicle at pH of 7.5-8.5 wherein the polymer-dispersed pigment is pigment encapsulated with a polymer wherein the polymer is obtained from hydrophilic monomer such as vinyl sulfonic acid and (meth)acrylic acid and hydrophobic monomer such as

styrene or alkyl (meth)acrylate. Attention is drawn to Table 2, MCP-7 which discloses pigment encapsulated with polymer obtained from 20% methacrylic acid, 20% vinyl sulfonic acid, 8% vinyl pyrrolidone, 20% styrene, 20% butyl acrylate, and 12% ethylhexyl methacrylate or from 48% hydrophilic monomer and 52% hydrophobic monomer. There is also disclosed system comprising substrate and ink jet pen containing the ink and method of printing an image comprising jetting the above ink onto substrate (paragraphs 1-2, 102, 185, 198, 201-203, 269, 271-271, 292, and 318). Given that the polymer-dispersed pigment is dispersed in liquid vehicle at pH of 7.5-8.5, it is clear that the polymer-dispersed pigment is stable at such pH.

In light of the above, it is clear that Nakamura et al. anticipate the present claims.

5. Claims 1, 6-11, 17-18, 22-25, 27-30, 32, and 34-36 are rejected under 35 U.S.C. 102(e) as being anticipated by Miyabayashi (U.S. 6,864,302).

Miyabayashi discloses first ink comprising liquid vehicle and polymer-dispersed pigment dispersed in liquid vehicle at pH of 8-9 wherein the polymer-dispersed pigment is pigment encapsulated with a polymer wherein the polymer is obtained from hydrophilic monomer and hydrophobic monomer such as styrene. There is also disclosed ink set comprising the first ink as well as second ink comprising pigment encapsulated with cationic polymer. It is disclosed that upon printing the two inks, there is reduced color bleed. There is also disclosed system comprising substrate and ink jet pens containing each of the first ink and second ink and method of printing an image comprising jetting the above inks onto substrate (col.1, lines 7-9, 27-42, and 58-60, col.3, lines 66-67, col.4, lines 37-47, col.9, lines 45-61, col.10, lines 19-22, col.13, lines 23-53, col.16, lines 36-43, col.18, lines 54-55, col.31, lines 16-23 and 60-61, col.32, lines

21-48, col.39, lines 28-29, col.51, lines 56-63, and example 5). Given that the polymer-dispersed pigment is dispersed in liquid vehicle at pH of 8-9, it is clear that the polymer-dispersed pigment is stable at such pH.

Attention is called to example 5 that comprises ink set comprising black ink comprising pigment encapsulated with polymer obtained 24% hydrophilic monomer and 76% hydrophobic monomer as well as cyan, magenta, and yellow inks comprising pigment encapsulated with cationic polymer.

In light of the above, it is clear that Miyabayashi anticipates the present claims.

6. Claims 18-25 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 00/20520.

WO 00/20520 discloses ink jet system comprising substrate and ink jet printing device comprising pigment encapsulated with polymer obtained from hydrophilic monomer including sulfonic acid group containing monomers such as styrene sulfonic acid and hydrophobic monomer such as styrene. Although there is no explicit disclosure of ink jet pen comprising the ink, it is clear that ink jet printing device would inherently contain ink jet pen that would contain the ink (page 1, lines 4-6 and 9, page 2, lines 10-13 and 23-35, page 3, lines 15-17 and 23-25, page 4, lines 7-8, page 6, lines 18-22, page 6, line 31-page 7, line 10, and example 1). Attention is drawn to example 1 that discloses pigment encapsulated with polymer obtained from 12% hydrophilic monomer and 88% hydrophobic monomer.

In light of the above, it is clear that WO 00/20520 anticipates the present claims.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 12-13, 26, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurabayashi (U.S. 6,790,878).

Kurabayashi discloses ink jet ink comprising liquid vehicle and polymer-dispersed pigment dispersed in liquid vehicle at pH of 3-8 wherein the polymer-dispersed pigment is pigment encapsulated with a polymer wherein the polymer is obtained from hydrophilic monomer such as vinyl sulfonic acid and (meth)acrylic acid and hydrophobic monomer such as styrene or alkyl (meth)acrylate (col.1, lines 19-16, col.3, lines 50-52 and 58-67, col.4, line 66- col.5, line 4, col.6, lines 14 and 45-47, col.8, lines 1-21 and 34-36, col.9, lines 13-21, and col.10, lines 1-2 and 11-16). Given that the polymer-dispersed pigment is dispersed in liquid vehicle at pH of 3-8, it is clear that the polymer-dispersed pigment is stable at such pH.

While Kurabayashi discloses the use of pigment encapsulated with a polymer wherein the polymer is obtained from hydrophilic monomer such as vinyl sulfonic acid and (meth)acrylic acid and hydrophobic monomer such as styrene or alkyl (meth)acrylate, there is no explicit disclosure of the use of styrene-vinyl sulfonic copolymer or styrene-butyl acrylate-methacrylic acid-vinyl sulfonic acid copolymer.

However, while Kurabayashi fails to exemplify the presently claimed ink nor can the claimed ink be “clearly envisaged” from Kurabayashi as required to meet the standard of anticipation (cf. MPEP 2131.03), nevertheless, in light of the overlap between the claimed ink and the ink disclosed by Kurabayashi, absent a showing of criticality for the presently claimed copolymers, it is urged that it would have been within the bounds of routine experimentation, as well as the skill level of one of ordinary skill in the art, to use ink which is both disclosed by Kurabayashi and encompassed within the scope of the present claims and thereby arrive at the claimed invention.

Allowable Subject Matter

9. Claims 14-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 14-16 would be allowable if rewritten in independent form given that there is no disclosure or suggestion in the “closest” prior art Kurabayashi et al. (U.S. 6,790,878), Arita et al. (U.S. 2003/0010252), Nakamura et al. (U.S. 2003/0195274), Miyabayashi (U.S. 6,864,302), or WO 00/20520 of ink jet ink comprising pigment encapsulated with polymer wherein the polymer

is styrene-trifluoroacrylic acid-vinyl sulfonic acid, styrene- α -(trifluoromethyl)acrylic acid-vinyl sulfonic acid copolymer, or styrene-trifluoro acrylic acid copolymer.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

EP 555649 discloses ink jet ink comprising pigment having attached ABC triblock polymer, however, there is no disclosure that the polymer-dispersed pigment is stable in the ink at pH from about 5.5 to 8.5 as required in present claims 1 and 30 and no disclosure that the polymer-dispersed pigment is a pigment encapsulated with polymer as presently claimed.

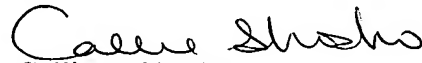
EP 1077238 disclose ink jet ink comprising liquid vehicle and pigment encapsulated by copolymer obtained from hydrophilic monomer and hydrophobic monomer as well as ink set comprising the ink as well as second ink comprising cationic polymer.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1714

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
4/17/06